



VIENNA ENERGY FORUM 2011

energy for all—time for action

Vienna, Austria, 21-23 June 2011



www.viennaenergyforum.org

FORUM REPORT



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

Federal Ministry for
European and International Affairs



International Institute for
Applied Systems Analysis
www.iiasa.ac.at

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BACKGROUND AND OBJECTIVES

Context

As we enter the second decade of the 21st century, it is becoming ever clearer that energy supply and demand will be one of the key determinants of future global stability and development. Decisions taken now by governments and international bodies will influence who has access to energy in the coming decades. Policy choices on sources of energy will also determine the cost of that access for consumers, society at large and for the planet.

Targets for energy access did not form part of the millennium development goals (MDGs) but there has been a growing recognition over the past decade that energy access cannot be separated from the debate on poverty, economic growth and the environment. Currently almost half of the world's population lacks access to clean, modern energy for fuel and heating, while a quarter has no access to electricity. Without sustainable energy services the poor cannot get the necessary health and education provision needed for development, nor can they benefit from new technology or improved economic production methods which could help put them on the road to sustained development. With the global population forecast to reach 9 billion by 2050, these problems risk becoming more entrenched unless governments act now.

In 2009, the United Nations Industrial Development Organization (UNIDO) hosted the first Vienna Energy Forum (VEF) against a backdrop of global market turmoil and rising oil prices. The forum called for the creation of clear energy development goals (EDGs) for the coming two decades. It also recommended that UN Energy be significantly strengthened as the body best able to coordinate and encourage the levels of international cooperation required to meet this century's energy challenges.

Two years on, clear goals have been developed and energy is very much at the forefront of policymakers' minds at the international and national level. The creation of the United Nations Secretary-General's Advisory Group on Energy and Climate Change (AGECC) in

2009 ahead of the Copenhagen climate conference raised the level of discussion of energy matters within the United Nations. In its 2010 report, the advisory group called for nothing short of a clean energy revolution, setting out three specific goals for access, efficiency and renewable energy. In December 2010, the United Nations General Assembly voted to make 2012 the Year of Sustainable Energy For All, giving focus and greater visibility to efforts to meet these targets. The year will see a number of global events aimed at pushing the agenda for access to clean, modern energy.

In this context, the 2011 Vienna forum—“Energy for all—time for action”—could not have been more timely. It gave an opportunity to policymakers, civil society and the private sector to further develop the United Nations’ agenda on energy in the run-up to the United Nations’ Conference on Sustainable Development (Rio+20) in June 2012. At the same time, it contributed to discussions which will shape global climate policy for the United Nations’ forthcoming Conference on Climate Change (COP17) in South Africa in December 2011 and provided a valuable discussion platform for Global Energy Assessment, which seeks to define a new global energy policy to help eradicate energy poverty and extend access to all.

This year’s forum once again took place in a time of economic uncertainty. Sustained high prices for oil, political instability in a number of supplier countries and the repercussions of Japan’s Fukushima nuclear disaster have all contributed to a shift in the energy debate and put energy at the top of the political agenda. These developments have strengthened the case for renewable energy in many eyes and the sector is attracting higher levels of investment and R&D. It also benefits from the support of the International Agency for Renewable Energy (IRENA), which was set up in 2009, reflecting the growing realization among governments that energy demands and climate change must be tackled together.

The Forum

The Vienna Energy Forum (VEF) 2011 “Energy for all – time for action” co-organized by UNIDO, the Austrian Federal Ministry for European and International Affairs and the International Institute of Applied Systems Analysis (IIASA), brought together some 1,200 participants from 125 countries representing policymakers, civil servants, scientists, energy experts and NGOs. More than 50 members of governments and several former heads of state attended. The conference, which was held over two and a half days in the Hofburg Imperial Palace in Vienna, consisted of two high-level panels, five plenary sessions and six round tables.

The objectives set forth for the Forum were as follows:

- To mobilize political support for the energy access agenda, underscoring that energy access is necessary for poverty reduction and that access and climate stabilization can be pursued in mutually reinforcing ways;

- To build consensus on what “access to energy” means and how to understand what it takes to provide access in different regions and globally;
- To demonstrate that access can be achieved: technologies are available; financing would amount only to a fraction of the overall energy investments needed; and
- To start discussing models of funding, taking into account the necessary division of labour between the public and the private sectors and between national and international investment.

The VEF addressed these objectives in its various sessions:

High-level Panel I – Paving the Way for Universal Energy Access

High-level Panel II – Sustainable Energy for a Green Economy

Plenary Session 1 – Defining and Measuring Energy Access

Plenary Session 2 – Goals and Targets for Energy Access

Plenary Session 3 – Renewable Energy and its Potential for Energy Access

Plenary Session 4 – A New Global Agenda for the 21st Century

Plenary Session 5 – Financing Universal Energy Access

Round Table 1 – Concrete Energy Action to Address Climate Change

Round Table 2 – Pathways to Sustainable Energy Systems

Round Table 3 – Role of Energy Efficiency for Productive Uses

Round Table 4 – Low Carbon Transformational Technologies

Round Table 5 – Addressing Basic Rural Electrification Needs in a Regional Context

Round Table 6 – Partnerships for Financing

It is not the intention of the conference report to review all the topics or issues discussed at the meeting. Rather, it will focus on the key outcomes from the conference using discussion material from the meetings to support the recommendations.

For those interested in a full summary of the programme and panel members, presentations can be found at www.viennaenergyforum.org. The International Institute for Sustainable Development (IISD) covered the VEF 2011; its report is online at www.iisd.ca/ymb/energy/vef/2011/.

Reflections

VEF 2011 kicked off with speeches by senior representatives from the joint organizers, two former heads of state (Olusegun Obasanjo of Nigeria and Julio Sanguinetti of Uruguay), the Prime Minister of the Cook Islands, Henry Puna, the CEO of the Global Environment Facility (GEF), Monique Barbut, and the Secretary-General of the African, Caribbean and Pacific Group of States (ACP), Mohammad Ibn Chambas.

In a video message to the Forum, Secretary-General of the United Nations Ban Ki-moon reiterated the United Nations' three 2030 targets and spoke of the importance of moving to a clean energy economy. "We need nothing short of a clean energy revolution," he said. "That is why the Rio+20 summit is so important—it is an opportunity to promote clean energy transformation and a transition to low carbon growth—this forum is an important milestone on that path."

The opening keynote address was given by Arnold Schwarzenegger, former Governor of California, United States, who emphasized the importance of clean and renewable sources of energy for increased energy access. "Universal energy access is not just about lighting a dark room, or cooking on a better stove, it's about the freedom energy—and especially renewable energy—gives us," he said.

Keynote speakers stressed the importance of energy in dealing with the world's development challenges. They also acknowledged that major institutional and political changes would be required to put global energy systems on a sustainable path.

At the same time, the Forum saw the pre-launch of the Global Energy Assessment (GEA, www.globalenergyassessment.org), to be published in 2011. GEA co-president Ged Davis said the assessment would lay out a set of specific policy tools for policymakers, address the major energy challenges facing the world, and look at research and technology and the investment needed to achieve energy access.

Throughout the conference, participants emphasized the need for urgent action on the three goals for energy access, calling for the necessary political will to be galvanized to make universal access a reality.

"It's time for action—I think our people are getting impatient with hearing we are in conferences, summits and seminars but in actual practice they don't see the results," Minister Peters said on the sidelines of the Forum. "Once and for all this is an intention to come up with actionable, funded programmes that end up benefitting people on the ground ... the 30/30/30 initiative is the most beautiful plan for action, it is actionable as a target."

Discussions on how best to attain universal access were wide ranging, although a consensus emerged on the costs of access, estimated at around US\$ 40 billion per year. While these costs are high in absolute levels, they correspond to around only 3 per cent of total energy investments, or 8 per cent of existing energy subsidies, and would therefore be affordable with appropriate institutional frameworks and incentive structures.

However, for many participants, in particular those from developing countries, more needs to be done to extend the use of green energy solutions as part of a range of energy options. Despite encouraging progress in the availability of renewable energy technologies, costs are still high. There was agreement that part of the required cost cutting could come from greater focus on energy efficiency, which would free up resources to invest in cleaner technologies such as solar and wind.

Participants also commented that in addition to a goal that supports the deployment of renewables, consideration should be given to a higher-level goal that will address the overall objective of reducing the carbon intensity of the energy sector, and in doing so will capture all the pathways for a global transition to a low-carbon economy. Furthermore, participants noted that the proposed goals should be consistent with the objective of limiting global warming to 2°C and eventually to 1.5°C.

Parallel events

Heightened interest in the energy debate was clearly reflected in the number of major parallel events that accompanied the Forum:

21 June	22 June	23 June	24 June
Vienna Energy Forum 2011			
Ministerial Meeting	Ministerial Meeting		
	Circulo de Montevideo Annual Meeting		

Ministerial Meeting on Energy and Green Industry

At the invitation of UNIDO, economy, energy, industry, foreign affairs and environment ministers and high-level government representatives from 77 countries met in Vienna to coincide with the second Vienna Energy Forum. The three global objectives set out for the meeting in the context of sustainable industrialization and poverty alleviation were: (a) expanding clean energy access; (b) enhancing industrial energy efficiency; and (c) promoting green industry as an integral component of the transition to a green economy.

The ministers had rich discussions focusing on key pathways for global sustainability that included energy poverty eradication and greening the industrialization process. They took note of the three clear goals for the Energy Agenda and reflected that these goals constituted essential pillars for a sustainable vision for Rio+20 and beyond. Their discussions reaffirmed the centrality of the three energy goals to sustainable development and a global transition to a green, low-carbon economy.

Ministers hoped that the subject of the Green Economy would be firmly on the agenda at Rio+20 and that discussions would provide an opportunity to reach consensus on what defines a Green Economy and how it could be put into practice. In this context, UNIDO’s Green Industry Initiative, which provides the international community and national governments with a platform for fostering the positive role of industry in achieving sustainable development, was acknowledged.

Circulo de Montevideo—Annual Meeting

The Circulo de Montevideo (CdeM), a 30-member organization that promotes sustainable industrial development in Latin America, accepted an invitation to hold its annual meeting to coincide with the Forum. The CdeM includes academics, a former head of state and policymakers, many of whom participated in the forum debates. The CdeM acts as a permanent forum for reflection among its some 30 prominent members, aiming at reviewing and identifying strategies and means for promoting sustainable industrial development in the Latin America region

The CdeM substantively contributed to promoting green industry and the sustainable energy access agenda by way of their active participation in the high-level panels of the Vienna Energy Forum and through their own CdeM roundtable discussions on how to better foster and link green industry and energy for sustainable development in Latin America

Additionally to CdeM’s open and closed sessions, a Latin American Round Table in front of the diplomatic and business communities was organized with the full support of the Austrian Ministry of Foreign Affairs in association with UNDP and SEGIB, with the main objectives to review the issues and challenges faced by those countries.

Side events

Some organizations and initiatives made use of the wide participation of international experts, policymakers and energy practitioners and organized separate dedicated side events:

BBC World Debate	<p>Powering Development in the 21st Century:</p> <p>The BBC World Debate, a monthly programme aired on the BBC News Channel, addressed how to face the challenge of rising energy needs in the developing world and deliberated on what role nuclear energy would play, especially after the nuclear crisis in Japan in early 2011.</p>
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Austrian Development Agency	<p>Renewable Energy in Developing Countries—Options for Austrian Know-How and Technology Providers:</p> <p>During this side event various renewable energy programmes in Africa, initiatives and business opportunities in the field of renewable energy were presented.</p>
Global Alliance for Clean Cookstoves	<p>Global Alliance for Clean Cookstoves:</p> <p>This meeting was hosted by the United Nations Foundation (UNF) and aimed to offer an overview of the health impacts and environmental and technological opportunities in clean stove design. There were also discussions on the role of the private sector in catalysing the global market, and opportunities and challenges around project implementation.</p>
Federal Ministry for Economic Cooperation and Development of Germany (BMZ)	<p>Towards a Definition of Energy Access:</p> <p>This side event aimed to further clarify the understanding of energy access among sector practitioners and policymakers and to elaborate on the impact this has on actual policymaking and the implementation of corresponding programmes. The event took into account the VEF's high-level panel discussion as well as the conclusions of the plenary session on defining and measuring energy access.</p>
Global Network on Energy for Sustainable Development (GNESD)	<p>Clean Energy Access for All:</p> <p>At this expert workshop both the AGECC recommendations and some key findings of the Global Energy Assessment were presented. Further, energy poverty in cities, energy access case studies from various African regions and policy options to promote the increase in energy access in Africa were discussed.</p>
Food and Agriculture Organization (FAO)	<p>Energy and Agriculture: What Energy for and from “Climate Smart” Agri Food Systems and Rural Development:</p> <p>The workshop aimed to share views and information and discuss priorities in the transition to a more efficient agri-food system, and deployment and sustainable supply of renewable energy in rural areas.</p>

KEY RECOMMENDATIONS

Participants supported—by acclamation—the United Nations Secretary-General’s three interlinked global targets set for 2030 under the 30/30/30 agenda:

- Achieving universal access to modern energy services;
- Improving energy efficiency by 40 per cent;
- Producing 30 per cent of the world’s energy from renewable resources.

It was stated that the three energy targets are ambitious but also achievable. By meeting these three targets the overall goal of Sustainable Energy for All can be achieved.

1. Universal access to modern energy by 2030

The Forum recommended a multifaceted approach to achieving universal energy access by 2030, which would require action on international, national and municipal levels, including the formulation of development strategies and roadmaps. National governments, working also within suitable regional configurations, should develop sustainable long-term energy strategies and targets so that international cooperation can be guided by locally set priorities. There is no one-size-fits-all solution.

It was also noted that many people in developing countries already have access to a variety of energy sources for heating, lighting and cooking, but they are often dangerous and inefficient. This means that universal access must be achieved from modern energy sources.

Specifically, universal access by 2030 would mean providing access to clean, affordable, modern energy with low greenhouse gas emissions for cooking, lighting, heating and cooling and productive uses, through both centralized and decentralized systems.

Given that energy is clearly crucial for enabling productive activities, education, health, the reduction of air pollution and for attaining sustainability, achieving universal access would move the world closer to meeting the eight millennium development goals.

It would help to ensure sustainable livelihoods for the 3 billion people who currently rely on biomass for heating and cooking and the 1.5 billion without electricity, and help put the poorest communities on a path towards lasting development.

In its 2010 World Energy Outlook, the International Energy Agency (IEA) said that if a “business as usual approach” is taken in the coming decades, the numbers of people without basic energy provision will at best remain the same and may even rise. Under current policy commitments there will still be 1.2 billion people without access to electricity by 2030, while the numbers of those relying on biomass for cooking will rise.

Poverty is not only income-related—it also means lack of access to resources or social networks. It means poor health and education, especially for women and girls, who are the main victims of poor indoor air quality caused by burning biomass. Efforts to eradicate poverty cannot be separated from efforts to bring basic energy to over a third of the world's population currently in need. Energy access is not a luxury but a necessity; the lack of it keeps the poor locked into cycles of deprivation.

To achieve universal energy access will mean connecting 400 million households by 2030 and providing 700-800 million households with modern fuels. This represents a rise of 2 per cent a year across the globe over the next 20 years. In sub-Saharan Africa it would require a rise of 8 per cent a year on current rates of access.

This can only be achieved if international cooperation is stepped up, while national and local targets need to be brought together. Both public- and private-sector investment should be increased.

2. Improving energy efficiency by 40 per cent

The second goal—improving energy efficiency by 40 per cent—is about promoting energy efficiency or “doing more with less”. It is not possible to discuss access to modern energy without taking the question of efficiency into consideration. Just switching to clean modern energy will bring immediate efficiency gains and help reduce greenhouse gas emissions, 70 per cent of which come from the energy sector.

This goal is essential because energy efficiency improvements are cost effective, often referred to as “low-hanging fruit”, but require upfront investments and financing to cover the delivery costs. They require integrated, intersectoral approaches, e.g. involving urban planning and architecture. New policies, institutions and business models will also be needed to reach the full potential of efficiency savings.

Improving energy efficiency is crucial for mitigating the negative impact of current consumption and production patterns on greenhouse gas emissions. In its 2010 report, the Secretary-General's Advisory Group on Energy and Climate Change (AGECC) said that the adverse impact on the environment of soaring energy demand would increase significantly in coming years if current consumption patterns were not altered. Reducing the carbon intensity of energy—i.e. the amount of CO₂ emitted per unit of energy consumed—is a key objective in reaching long-term climate change goals.

Governments across the globe have already implemented a raft of efficiency measures to help reduce energy intensity, which has dropped at a rate of 1.3 per cent per year (UN Energy) since 1990. Firms are changing how they manufacture and are working towards developing new technologies and raising awareness but the pace of change needs to quicken. And governments and firms need to review their entire energy management systems from power generation through to consumer use.

Efficiency improvements, especially in the industrial sector, are one of the more cost-effective ways of helping developing countries meet rising demand, so easing the link between economic growth and environmental degradation. With industrial production expected to rise fourfold by 2050, efficiency gains will be crucial to efforts to reduce emissions.

However, the AGECC report also conceded that capturing the full gains from energy efficiency measures was difficult. Along with efforts to establish new market mechanisms and develop new business models, the international community must therefore strive to harmonize technical standards for key energy-consuming products and equipment to speed up the transfer of know-how and good practices. It should also encourage investment in energy efficiency.

If done successfully, these efforts would reduce intensity by about 2.5-2.7 per cent a year compared to the historical average over the past two decades of 1.3 per cent, according to the IEA.

IEA figures suggest that capturing all cost-effective benefits could reduce oil consumption from forecast levels of 2,700 to 3,700 million tons of oil equivalent in 2030 to 700-1,700 million, which would have a significant effect on global emissions.

On the demand side, there are many opportunities to improve end-use efficiency in industry, building and transport. In the building sector, much will depend on the take-up of energy-efficient electric equipment and lighting. In transport, efforts to integrate public transport and traffic planning, along with the use of hybrid and electric vehicles, will bring benefits.

The creation of compulsory international efficiency norms should be considered, with the United Nations taking a leading role, while every country should ensure it has efficiency standards in appliances and buildings.

For governments, efficiency gains will bring clear financial benefits as large capital investments can be avoided in the energy sector. The IEA says there is about US\$1 trillion in avoided energy infrastructure investment to 2030 if available energy efficiency is captured.

However, the above benefits need to be balanced against the cost of capital, taxes and subsidies, which influence investment. In many countries energy subsidies distort price signals and present a disincentive to invest in efficiency. There is also a lack of awareness of opportunities and a lack of capacity in many developing countries to design and implement the right regulations, finance and efficiency measures.

Barriers need to be overcome in policy and regulation, codes and standards, financial incentives, access to finance, institutional capability and information programmes to allow energy efficiency gains. At the same time, some developing countries may simply not have the technology available to implement certain efficiency savings. There is also the risk of increased consumption if efficiency gains lead to lower prices.

These challenges demonstrate the importance of taking an integrated approach with a high degree of international cooperation to ensure that the huge potential of energy efficiency is realized.

3. Producing 30 per cent of the world's energy from renewable resources

Lastly, the conference endorsed the third goal of raising the share of renewable energy in final energy output to 30 per cent by 2030, double the current level.

The use of renewables has grown significantly in recent years, encouraged by high and volatile fossil fuel prices, “green” incentives and a decline in production costs. Renewables are now gaining a new boost after the backlash against nuclear power in some countries following the Fukushima accident in Japan. For example, Germany, which derived 23 per cent of its power from nuclear, now intends to shut all of its 17 nuclear plants by 2022. It plans to plug the energy gap by raising the share of renewables to 35 per cent by 2022.

Renewable energy sources such as wind, solar and hydro are widely available and have immense potential to provide future energy needs. The use of these technologies has grown rapidly in the past five to six years with investment levels up by 540 per cent between 2004 and 2011. At the same time, since 2005 the number of countries with specific renewable energy targets has risen from 55 to 119.

In many developing countries with large rural populations the use of smart-grid and off-grid renewable solutions is bringing increasingly cost-effective and reliable energy services to people who previously had no access to modern power. In India, where 40 per cent of the population remains off-grid, the government is planning to raise the number of homes using solar power for lighting to 20 million from 600,000 today. In 200 Indian villages, rice husk gasifiers are being used to supply electricity, with the aim of extending their use to 10,000 villages by 2020.

These types of off-grid solutions also provide a local answer to energy needs which improves self-reliance and energy security while boosting local income and creating jobs. National governments could develop policies to encourage community ownership of micro-grids to further improve services in rural areas.

In cities large-scale centralized solutions will be needed to meet demand, which will continue to rise as the rising global population becomes more urban.

However, despite rapid growth in renewables, a number of barriers continue to hold back their uptake. These include the food versus fuel debate surrounding biofuels, landscape damage from wind turbines and the reliability of solar power, all of which indicate that the technology debate may not yet be over.

But by far the greatest barrier continues to be cost. Costs are falling as investment rises and technology improves but in most cases still remain much higher than those for conventional energy sources. Thus government subsidies and incentives will remain necessary for the foreseeable future. But greater levels of research and development and investment will in time bring economies of scale and facilitate the transition towards a cleaner energy system. The inclusion of the health and environmental costs of energy use would also make renewables more competitive.

CLOSING STATEMENT

Current energy systems are inadequate to meet the demands of the 21st century. The decisions made today about how we supply our future energy needs matter hugely in relation to our ability to deal with climate change, poverty and demographic pressures.

Major transformative changes are needed to achieve universal access, greater efficiency and the renewable energy goals. Energy systems must ultimately move away from fossil fuels and high-carbon intensity if the millions of energy poor are to access affordable, safe, secure and sustainable energy services.

“Energy for all - time for action”, means a need for new institutions, policies, incentives, rules and behaviour to make this possible. Building energy systems on a green, sustainable basis will bring new opportunities and new technologies. It would also bring improved security, lower pollution and raise health and environmental protection.

One prerequisite for this is large, early and sustained investment in new energy, strategic planning for tomorrow, tapping new energy sources and empowering people and institutions, i.e. large-scale capacity-building. Currently, 90 per cent of clean energy investment is made in the G20.

The key to changing this is political will.

The Vienna Energy Forum, which has become an important milestone in contributing to and shaping the global energy agenda, provided an essential platform for helping to mobilize this political will ahead of the United Nations Conference on Sustainable Development in 2012. It also forwarded the cause of the 30/30/30 agenda, which will be presented at the COP 17 conference in Durban later in 2011 and the Rio+20 summit next year.

Progress made at these important international events will lay the groundwork for the third Vienna Energy Forum in 2013, which will provide participants with another platform for expert exchange and stimulating discussion on how to meet the world’s energy needs.

Co-sponsors:



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